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ABSTRACT

Articles included in the collection of convention papers discuss a creativity score from the Stanford Binet and its applications, performance based instruction, methods for maximizing the development of talent among the urban disadvantaged, and talent potential among the disadvantaged. Abstracts of papers are provided on the following topics: effects of anxiety on creativity, a followup of sixth grade regular and special class gifted, a holistic conception of creativity and intelligence, measuring perceptual motor ability, and curriculum in differential education for the gifted. (JM)

CEC Selected Convention Papers 1969

The Gifted

THE GIFTED

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A CREATIVITY SCORE FROM THE STANFORD-BINET AND ITS APPLICATION

by

Catherine Bruch

Despite the fact that the Stanford-Binet (L-M) is assumed as an intelligence test not to measure creativity, certain items on the test may have components of what Guilford (1967) considered factors relevant to creativity or to creative problem solving. Guilford considers that all divergent production factors, all transformation factors, cognition of units, systems, and implications, and evaluation of implications have creativity values. The creativity score which may be derived from the Stanford-Binet is based upon an adaptation of these Guilford factors.

Description of the Creative Binet

Rationale. A method for analyzing the Stanford-Binet items according to the Guilford Structure of Intellect components has been logically determined by Meeker (1969, in press). Meeker has specified for each Binet item its Structure of Intellect factors. While not all Structure of Intellect factors are represented in the Binet, eight divergent factors, five additional transformation factors, two factors involving cognition of units, three factors involving cognition of systems, two factors of cognition of implications, and one factor of evaluation of implications may be found. Using the Meeker analysis system, those factors described by Guilford as relevant to creativity were reweighted in a systematic fashion giving higher creativity values to items composed of a higher ratio of creativity components and zero creativity value to items having no aspects of creativity. Thus, a creative score was devised for each item on the Binet giving a proportionate value to the creativity in the item.

Scoring. In the scoring of the complete Creative Binet all items are considered and weighted for creativity. A total creativity score is derived which may be converted to a creative age score. The creative age is then compared to the mental age to determine whether a subject has a creative age greater than his mental age or a creative age less than mental age. Higher positive values identify high creatives; higher negative values are assumed to differentiate low creatives. If such comparisons are made, it is hypothesized that the high creative subjects should be able to perform more effectively in creative problem solving tasks than the low creatives.

As yet, no statistical cut point for high or low creativity values (plus or minus months of creative age) has been established. A score of approximately plus or minus five months is suggested for designation of high and low extremes in a group. The range in current data has been from +36 months to -16 months of creative age.

On the abbreviated form of the Creative Binet only approximately two-thirds of the Binet items are considered. Those items having greater creativity score values remain in the abbreviated form.

An abbreviated mental age and IQ may also be derived when one uses only the abbreviated form of the Creative Binet. That is, if for research purposes an

investigator wishes to use this abbreviated form of the Binet, it would be possible for him to derive not only a creativity score, but also the usual mental age and IQ. Abbreviated IQ's show a tendency to be slightly higher than regular Binet IQ's, however. The reliability of the abbreviated IQ, computed from 200 cases across all age level ranges, is reasonably consistent. The abbreviated IQ correlated adequately at each age level with a complete Binet IQ, predominantly at the .01 significance level with only three chronological age levels correlated at the .05 level.

Only tentative use of the abbreviated form of the Creative Binet is suggested at this time, since further analyses are yet to follow in comparison with the Creative Binet. The probable value of the abbreviated form lies in its function of pointing out the extremes of high and low creatives; it is less reliable in the middle ranges.

Current Research Results

A variety of studies are underway attempting to assess the validity of the Creative Binet as a measure of creativity, or creative problem-solving ability. Needless to say, this is a difficult task since the measurement of creativity is in itself such a controversial issue. As the originator of the method for scoring the Binet for creativity, the author has sought and continues to seek interested investigators who will assist in providing both normative and validity data. The creative Binet is still in experimental stages, and is offered simply as an experimental instrument. Results of several small studies are given here. These results are brief, since full publication of the studies at a future date will contain elaborations of details.

Clinical validity. In the initial case study data on the Creative Binet, observations were made which suggested that persons who scored as high creatives would tend to have higher self concepts, productive coping powers, greater independence, more flexibility, and similar traits. Low creatives were observed to have opposite characteristics. Such characteristics for the high creatives would have been expected from the literature on creativity.

In order to test the validity of the clincial inferences that high creatives would show higher self concept, coping powers, independence, and flexibility than the low creatives, a study was designed in which 13 school psychology trainees were each asked to select from their recent Binet protocols at least 3 high creatives and 3 low creatives according to the clinical descriptions. These protocols were then scored on the Creative Binet to determine whether the direction was positive (creative age greater than mental age) or negative (creative age less than mental age). No limitation of ability was specified for selection, since the Creative Binet is intended to measure how effective a person is in creative problem solving abilities as compared with his overall mental age. Seventy-seven cases were considered, ranging in chronological age from 3 years, 4 months to 17 years, 9 months. IQ's ranged from 71 to 149. Chi square procedures were used. Results indicated that:

1. In the prediction of both high and low creatives, school psychology trainees predicted accurately in 60 percent of their choices. They predicted with an accuracy of 69 percent in the higher ability group (IQ score 110 and above). Chi square (4.01) was significant at greater than the .05 level of probability.

2. The greatest degrees of accuracy of predictions were found in predictions of high creatives of the higher ability level (78 percent accuracy) and of low creatives of lower ability (83 percent). Chi square (14.52) was significant at

greater than the .001 level.

It was concluded that the clinical descriptions of high and low creatives as given by the author appear to be reasonably consistent, especially in the cases of creative students with higher ability and less creative subjects of lower ability.

In a smaller study within the larger study two school psychology trainees attempted to determine high versus low creativity primarily upon the basis of statements relating to high versus low self concept. All of the high creatives were in the IQ score range from 125 to 141 (N = 5); IQ's for the low creatives ranged from 90 to 109 (N = 7). High creatives were predicted with 60 percent accuracy, and low creatives predicted with 71 percent accuracy on the basis of the primary criterion of high or low self concept. No statistical significance level was computed.

Should further studies confirm this general tendency for creative scores to indicate consistent patterns of clinical interpretations, the Creative Binet may possibly become a valuable objective instrument in clinical ratings.

Validity as a measure of creativity. In a study involving 102 children three through six years of age, correlations between the creative age on the Creative Binet and the Figural tasks of the Torrance Tests of Creative Thinking were little different from correlations of Mental Age with Torrance Tests. When the effects of Mental Age were partialled out, no correlations were significant. With chronological age and with sex added as constants, the partial correlations remained non-significant.

Examination of these data using rank order correlations for individual class groups and correlated separately for boys and girls had shown previously that the class groups differed on pre and post Creative Binets. Analyses of variance (ANOVA) were therefore computed, with creative age as the dependent variable. Pre (1967) and post (1968) Creative Binets were analyzed for 2 younger (CA 3 and 4) and 2 older (CA 5 and 6) class groups by sex and by teacher. MA, CA and IQ were covariants.

Interactions significant (.05 or .01) in the older group were MA and sex X teacher (1967), MA and teacher (1968), and IQ and sex X teacher (1967).

A comparison of the 1968 adjusted means showed that the teacher differences were in opposite directions. That is, in one class group, when the effect of mental age was removed, the mean creative age increased (+1.47 months) while in the other class group the mean creative age decreased (-1.53 months). Continuing analyses of these data will follow in order to interpret the other interactions. These data suggest that the Creative Binet was sensitive to differences between the two older class groups in their abilities to function in the tasks designated as creative problem solving.

Further studies will proceed to examine and refine the Creative Binet. The leads furnished thus far from this instrument indicate that it is of current value in pointing out through a simple rescoring method the extremes of cases of high and low creative problem solvers. It is also sensitive to differences in creative thinking between groups.

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ABSTRACT

EFFECTS OF CLASSROOM ANXIETY ON CREATIVITY

by

Don J. Hadley

Since the development of the creative process is at present suggested to be an important function of the American school, factors which may influence creativity development and production have become of special import. Although experimental evidence is sparse, it has been suggested that anxiety level may bear a relationship to creative production. The purpose of this study was to investigate the effects of two general levels of classroom anxiety on creative production of a sample of seventh and eighth graders.

Creativity, test anxiety, and intelligence measures were administered to 201 seventh and eighth graders under "neutral" classroom conditions. The students were then assigned randomly to two experimental groups, designated "anxious" and "relaxed." Equality of the two groups on all premeasures was established. Six months later the creativity battery was again administered, to the anxious group under simulated anxiety inducing classroom conditions and to the relaxed group under simulated anxiety reducing classroom conditions.

Comparison of mean change scores of the groups indicates greater improvement by the relaxed group on the battery total and on eight of nine subtotals computed. These improvements are significant at the .01 level on six of the eight as well as on the battery total.

The results demonstrate that in addition to the anxiety which may accompany children to the classroom, that anxiety introduced by the classroom--and the teacher in particular--can detrimentally influence creative production. The importance of the teacher in keeping classroom anxiety at a manageable level is evidenced.

ABSTRACT

A FOLLOWUP OF SIXTH GRADE REGULAR AND SPECIAL CLASS GIFTED

by

Roy H. Schreffler

Grouping for instruction has been, and continues to be, a problem for educators. Homogeneous grouping as a provision for the intellectually gifted has been practiced for about 40 years; but the results of attempts to determine the value to the students of this practice, although many times positive, have not been notably convincing of its merits.

Mounting dissatisfaction has been expressed in regard to the practice of

using IQ scores as the primary basis of special groupings. A number of other qualities have been shown to contribute to success in school and in other valuable areas of human endeavor. In particular, the recent attention to the creative aspects of giftedness has opened a new area for exploration before the implications of existing research have attained any degree of universal acceptance. Additional consideration must be given to the resolution of issues in traditional approaches in the education of the gifted.

The purpose of this investigation was to determine whether the benefits of a year's participation in sixth grade major work classes would have positive academic value during the subsequent secondary school years. Interrelationships of personal and social factors with high Binet IQ also were studied.

A year's experience at the sixth grade level in special class for high IQ children resulted in better scholarship, as indicated by marks subsequent to that experience. In addition, from the data it was concluded that the subjects' knowledge that they possessed high ability may have resulted in improved classroom performance regardless of the instructional arrangements. Also, the possibility that the secondary teachers may have been influenced in assigning grades by their knowledge of the student's special class participation cannot be overlooked. Some teachers later reported being overly severe on that account, but others may have been overly generous.

The relatively high initial school performance of the children considered pseudogifted in this study was not maintained in competition with bypassed high IQ children who showed few early signs of their superior intellectual endowment. Bypassed high IQ children would, most likely, be missed in a less than determined effort to test all children selected by a screening program, but their undetected presence in regular classes could contaminate the results of studies of achievement. In the present study this group most likely to be bypassed was composed largely of boys who reported at grade twelve that they frequently did not apply themselves to tasks which were not intrinsically interesting to them.

Individual scores on standardized achievement tests were shown to be influenced less by the type of school program encountered than by intelligence, as expressed in Binet IQ, and an unidentified factor existing prior to fourth grade.

The results of the study suggested that research attempting to demonstrate gains from school practices should involve measures other than the results of standardized achievement tests. The instruments used should reflect the specific objectives of the special class. The specific goals of such programs, as identified in the description of the special class, are different from those expected for children across the intellectual range and for the nation as a whole. Therefore, tests developed for average students across the nation should be used only to assure that the special class student meets the minimal expectancies of the program. Special evaluations of student performance relative tothe specialized objectives should be planned additionally.

The results of the standard tests were highly related to intelligence and suggested that children seem to increase at a relatively constant pace in any program except, in all probability, those of extreme inadequacy.

The importance to achievement of high IQ, as stated by Cox (1926), Goddard (1928), Hildreth (1938), and Ward (1961) was significantly demonstrated in the results of the present study. An individual's possession of high Binet IQ seems to be sufficient reason in itself for his inclusion in classes for the gifted.

The thorough identification in this study of the greatest possible number of qualified (high IQ) children meets the objection, frequently voiced in reference to Terman's group, of inadequate case selection. Yet, within the framework of the present study's more limited scope and different area under investigation, there was no suggestion in the data that Terman's (1925-1959) portrait of the gifted was, in any significant way, in error. The majority of the study's high IQ children possessed desirable qualities in abundance.

Patterns of personality, intelligence, and achievement by sex were not markedly different, but did vary in the directions as suggested in prior research. The boys were somewhat higher in mean IQ, and a slightly higher percentage of high IQ boys existed in the group. The girls were higher in reading speed and grade getting qualities during the elementary school years, but otherwise showed little difference.

It was found that teachers do not grade children in accordance with subject mastery but according to the relative capacities of the class groups being taught. With the special class group removed from the regular classrooms the average marks of the pseudogifted and remaining high IQ children increased.

Since it has been shown that intermediate level special classes for high IQ children were associated with better scholarship and positive personality traits, the establishment of such classes should be encouraged. Children of high Binet IQ should be included in such classes regardless of prior achievement as indicated by earned marks.

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ABSTRACT

A HOLISTIC CONCEPTION OF CREATIVITY

AND ITS RELATIONSHIP TO INTELLIGENCE

by

Webster R. Callaway

There are two main schools of thought in the realm of creativity research; namely, the holistic and the atomistic schools. The focus of this study is the

examination of the relationship between a holistic conception of creativity and IQ. One of the fundamental distinguishing features of the holistic position is the assumption that a valid and fruitful approach to the study of creativity must be derived from the life and work of unquestionably creative individuals. Criteria are developed by ascertaining common personality characteristics among creative people and by analyzing the process of significant and unabridged creative acts. The complete creative act, as depicted by those who have probed its process as well as by the subjective analysis of the creators themselves, is seen to involve much more than "divergent thinking." Socially useful creativity demands the synergistic cooperation of the entire personality, including all physical mechanisms and modes of thought. Affective and conative dimensions are as essential as the cognitive ones.

For the total group of 180 bright eleventh grade high school students and for the girls and boys considered alone, the hypothesis was accepted that six personality attributes (originality, social maturity, complexity, estheticism, theoretical orientation, and thinking introversion), selected from the OPI scales as being possible causative factors in creativity, would be positively correlated with IQ. The correlations were higher for the girls in every case than for the boys.

In comparing the high and low IQ groups on the six personality dimensions, it was found that the high IQ groups were significantly higher (.05) in every case when comparing the total sample and when comparing the girls only. However, in considering the boys alone, there was no significant difference between the high and low IQ groups in the case of theoretical orientation, although the association in this case was also positive.

Findings

1. A positive relationship between each of the personality variables and IQ was found (r varied between .18 and .34).

2. The relationship between the personality variables and IQ was higher for the girls than for the boys (for girls r varied between .25 and .40; for boys between .12 and .29).

3. For all three groups, total and boys and girls considered separately, the personality variable most closely related to IQ was originality, while the personality variable least related to IQ was theoretical orientation.

4. The high IQ group (mean IQ 137) was significantly higher (.05) than the low group (mean IQ 112) on each of the six creativity variables.

5. High IQ boys were significantly higher on the personality variables than low IQ boys with the exception of theoretical orientation. High IQ girls were significantly higher than the low IQ girls on all six personality variables.

ABSTRACT

MEASURING PERCEPTUAL MOTOR ABILITY IN PRESCHOOL CHILDREN

by

William J. Meyer

There is now general agreement that perceptual motor abilities, broadly defined, are required if a child is to achieve academic success during the primary grades. Given the importance of this set of abilities, it seems crucial that children with potential perceptual motor difficulties be identified prior to their entering the typical primary grade program. Unfortunately perceptual motor abilities undergo significant and profound changes during the age period from 5 to 7 years, making assessments during the preschool and kindergarten years extremely difficult.

For example, in a longitudinal study that I conducted while at the University of Pittsburgh we gave the Bender-Gestalt, using the Koppitz scoring system, to some 100 children beginning in September of the kindergarten year and retesting every 3 months through the end of the first grade. Pooling of scores at each of the testing periods resulted in an esthetically attractive developmental curve which had little or no meaning with respect to individual children. A random selection of children from the sample were then analyzed individually. It was discovered that patterns of change on the Bender-Gestalt were extraordinarily individualistic and seemingly unpredictable. Some children performed extremely well in September of kindergarten year, other children looked rather poor for long periods of time and then showed dramatic improvement, and still other children never showed any improvement over the 2 year period. Since that study involved only one component of perceptual motor abilities, it was decided to investigate a broader range of such abilities in an effort to determine if specific patterns of behavior might be indicative of subsequent dysfunction. This paper describes some of our efforts in developing assessment procedures borrowed from Keppart's Perceptual Survey Rating Scale but adapted for preschool children. Specifically we attempted to assess ocular motor control, gross motor control, and related performance on these tasks to a variety of theoretically related behavioral capabilities.

The subjects consisted of 74 children, with a mean chronological age 56.32 months, selected from the Research & Development Center Laboratory Nursery School. These children were predominantly from middle class families.

The following measures were taken: (a) six ocular motor tests (left eye pursuits, right eye pursuits, and pursuits with both eyes; convergence; refixation; starting); (b) the chalk board test involving both performance with one hand and with both hands; (c) the draw a line slowly task which requires a child to draw a line from the top to the bottom of a 8 1/2 x 11" piece of paper as slowly as possible; (d) a preschool achievement test developed for the laboratory school program; and (e) hand preference.

The results of the study include some highly tentative normative data on the ocular motor and gross motor skill task as well as a delineation of the procedures necessary to obtain high interjudge reliability with preschool children. A varimax analysis was performed on all of the measures with the addition of Stanford-Binet IQ, chronological age, and sex. A six factor rotation accounted for approximately 73 percent of the variance. These factors have been tentatively labeled as follows: Factor I appears to involve primarily perceptual motor skills, Factor II appears to be a cognitive styles factor, Factor III appears to be a hand coordination

factor, Factor IV involves gross motor skills, Factor V appeared to be a visual control factor, and Factor VI a visual coordination factor.

ABSTRACT

OPERATION ASTRA: A CURRICULAR QUEST IN DIFFERENTIAL EDUCATION FOR THE GIFTED

by

Virgil S. Ward and Joseph S. Renzulli

The authors indicate how for the first time previous efforts of theirs toward a theory of "differential education for the gifted" are related to more general systems of thought in the fields of developmental psychology and of epistemology which undergird education on the whole.

This effort was one of the long range objectives of Operation Astra, a USOE supported project in the Hartford, Connecticut, region. This aspect of the project endeavor was intended to provide: (a) a rationale for the units of study for gifted children in the elementary school grades, developing concurrently by working teams of university specialists from the arts and sciences, school teachers and professional educators; and (b) a body of theoretical principles supporting an indeterminate, theoretically consistent expansion of studies, differentiated from the main curriculum in the interest of learners with superior experiential and behavioral potentialities.

Four previous efforts toward a theory of differential education for the gifted are identified (Renzulli, 1966, 1968; Ward, 1952, 1960, 1961, 1965). These are related in an illustrative manner to certain concepts from the studies of human development by Jean Piaget, and to a recent epistemological system with special relevance for general education, developed under the rubric of "realms of meaning" by Phenix (1964) of Columbia University.

The ultimate goal of such endeavor is to provide supplementary and derivative studies--distinctive from and parallel to those serving the majority of students, in the specific demands made upon superior present cognitive and behavioral capabilities, and in relevance to the esoteric roles performed within human culture by positive deviants--which reach every distinctively endowed student, at every age level, and in every significant aspect of developmental experience appropriate to general education.

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PERFORMANCE BASED INSTRUCTION: IMPLICATIONS FOR PROGRAM OPERATION AND PERSONNEL DEVELOPMENT

by

William T. Ward and H. Del Schalock

A competency or performance base, field centered (hereafter referred to as ComField) model of a teacher education program derives from the primary assumption that learning facilitators should be able to demonstrate that they are able to perform the functions they are expected to perform before they assume the responsibility for doing so. The goal of ComField is to prepare learning facilitators to be able to perform the various functions required of them in educational settings of the 1970's and '80's. Three steps need to be taken to translate this general goal statement into operational program objectives:

1. The educational context anticipated in the 1970's and '80's must be specified.

2. The functions to be performed within such a context must be specified; for example, managing instruction, contributing to instructional systems development and evaluation, conferencing with parents, engaging in research, curriculum engineering and designing, etc.

3. The tasks to be performed in order to carry out each function must be specified. As used in the ComField model, tasks that teachers are to perform are defined in terms of the outcomes to be realized in the school setting, that is, the outcomes to be achieved through instruction, evaluation, conferencing with parents, etc.

Three assumptions are critical to such an approach to the development of a teacher education program: (a) there can be clarity in and agreement about the nature of learner outcomes to be nurtured, (b) there can be clarity in and agreement about the nature of the conditions that are required to nurture each outcome, and (c) there can be clarity in and agreement about the nature of the competencies needed by teachers to provide the conditions that will nurture each outcome.

The Application of System Technology to Teacher Preparation

The model rests upon a commitment to the methodology of system design. The system design process is based on principles which are concerned specifically with the production of controlled, measurable, predictable, and relevant learner achievements, while applying management principles and techniques for the devel-

opment of instructional systems which can assure successful performance at all levels.

The system approach to instruction and learning is totally learner oriented. It is primarily concerned with the processes for planning, management, design, production, and implementation of educational programs which start with the statement of relevant performance specifications for student success and finish with objective measures of student performance reflecting the achievement of prestated performance specifications.

Generally speaking, the application of system design principles means that each of the functional parts within the model, as well as the model as a whole, assumes three characteristics: (a) it is designed to bring about a specified and measurable outcome, (b) it is designed so that evidence as to the effectiveness with which it brings about its intended outcome is continuously available; and (c) it is designed to be adaptive or corrective in light of that evidence. This is the case whether the part in question is the total program or a segment of instruction within the program. As such, the model represents a process or way of proceeding. The instructional process applies a closed loop system of checks and balances whereby the advancement of the learner is carefully monitored and controlled to assure progress at a rate compatible with the student's ability to succeed. The process of continuous, closed loop interaction or feedback provides for continuous self correction for the student, the learning facilitator, the educational engineer, and the system designer, assuring the predictable achievement of established performance objectives. The whole process is goal oriented. In short, it is a process that requires its user to know what it is that he wants to accomplish, order events in such a way that he has some probability of accomplishing it, assess whether the specified events do in fact accomplish that which they are intended to accomplish, and if they do not, modify them until they do. This process is represented schematically in Figure 1.

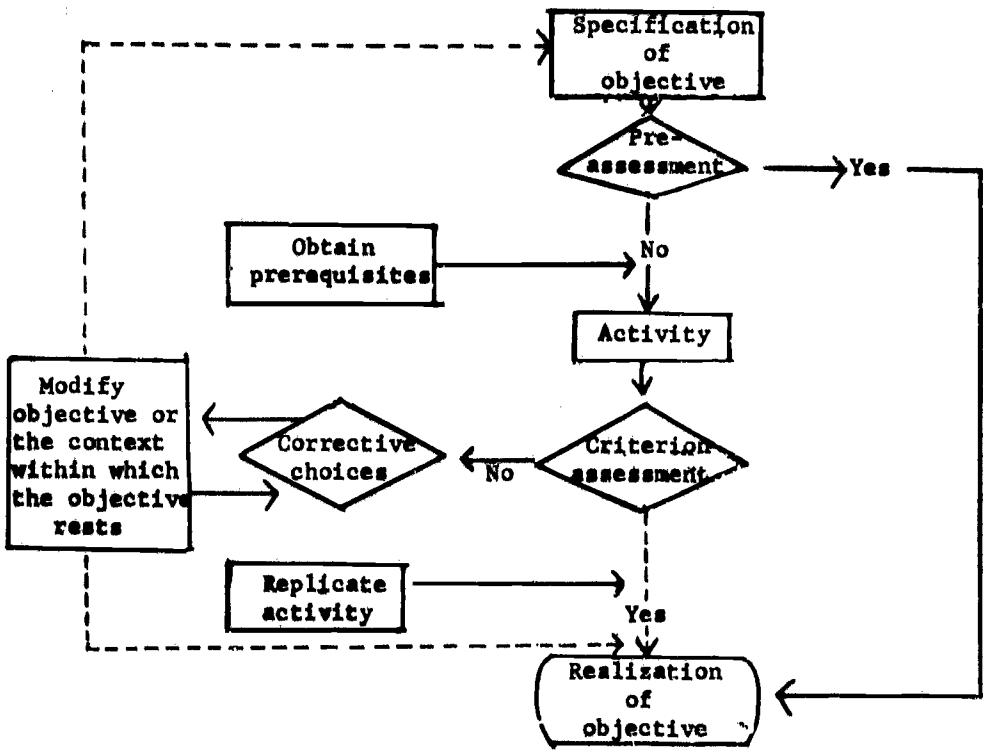

FIG. 1. A schematic representation of the adaptive process reflected throughout the ComField model.

By adopting the ComField model, a teacher education program is in the unique position of being able to (a) provide evidence that a teacher is able to perform the tasks that he is expected to perform prior to assuming responsibility for the teaching of children, (b) provide the means whereby schools can become intimately involved in the preparation of persons responsible for their operation, (c) provide the means whereby teachers and prospective teachers can contribute significantly to the shaping of the curriculum that is to guide their professional development, (d) provide the means whereby a college educational experience has personal relevance, (e) provide the support systems needed to carry out such a program, and (f) provide evidence as to the cost, effectiveness, and benefit derived from such a program. It is also anticipated that two "second order" outcomes will occur from a program so conceived: (g) that teachers will develop into independent, self directed, continuing learners themselves, and (h) that the systematization and personalization of instruction will transfer to the education of others. The basic assumption underlying hope for such a long range outcome is indicated in (h): simply that when prospective teachers themselves engage in an educational experience in a way which gives it personal meaning and when they themselves become independent, self directed learners, they above all others will be likely to create a similar kind of learning experience for those they teach.

Extreme dissatisfaction has been expressed during the past 10 to 15 years concerning the quality of preschool, elementary, secondary and higher education in the United States. Teacher education programs have been the target of the most severe criticism during this period of time. Primary deficiency has been noted in present educational programs by Project Talent (Flanigan et al., 1962) and other studies.

The inability of educational programs to provide for individual differences at every age level is appalling. Difference in academic ability, achievement, talent and special aptitude are generally ignored by schools and colleges.

Project Talent produced empirical data to support what many critics had been saying, i.e., "that current educational programs provide very little assistance for students in (a) developing a sense of responsibility for his educational, personal, and social development; and (b) making realistic educational decisions and choices to prepare him for adult roles in which he will make full use of his talents (Flanigan, 1967, p. 28)."

If schools are to be responsive to these needs, the educational objectives must be more inclusive. Such objectives should include planning and preparing for an appropriate occupational role, personal and social development, and those aspects of general education that will help students find deeply satisfying activites for anticipated increases in leisure time activites. Emphasis on learning how to learn, how to think, and decision making is essential.

A look at the current school operation and instructional technique will reveal that it is practically impossible for large numbers of students to achieve that "special combination of skills, knowledge, creativity, attitudes and appreciation to prepare him for the role he selects (Flanigan, 1967, p. 28)."

A number of projects are presently under way to develop models for organizing and operating educational programs at the elementary and secondary school levels. ES '70, Project PLANS, and the multi-unit elementary school are three examples of attempts to provide individually guided educational programs for all students. The development of teacher preparation programs to provide competent personnel to effectively operate these programs is absolutely essential.

The major challenge facing American education in the next decade is one of shifting structures and procedures to accommodate these kinds of criticisms. Complicating the task is the fact that new pressures will emerge within and upon education as time progresses, so that the problems we see now will not be the problems that we see five years from now. It is because of this complicating influence of time that the ComField model for a teacher education program rests squarely upon predictions about education in the future.

To facilitate speculation as to the nature of the educational context in the 1970's and 1980's, we have looked to those agents and agencies who have made it their business to make systematic conjectures about the future and what this means for society and education. The most noted of these are Kahn and Wiener of the Hudson Institute, who have authored The Year 2000 (1967). Bell, chairman of the Commission on the Year 2000, has written working papers for the Commission on the Year 2000, edited the 1967 Summer issue of Daedalus, which was a report of the work of the Commission, and "Twelve Modes of Prediction--A Preliminary Sorting of Approaches in the Social Sciences," in the Summer 1964 issue of Daedalus. Also, Rosove (1968) and others at System Development Corporation, Santa Monica, California, have made this an area of concern.

R sove has used the methodology of contextual mapping to investigate possible implications of five of Kahn and Wiener's predictions about social and technical trends for society, education, and the roles of educators (Figure 2). Contextual mapping is defined as..."a graphic display of the logical and causal dependencies of functionally related phenomena (Rosove, 1967, p. 3)."

In applying this methodology to five trends projected by Kahn and Wiener, 98 different possible future roles for educators, 101 potential future issues in education, 101 possible educational functions, and 113 implications for education were predicted by Rosove (1968).

From the data generated by contextual mapping, 18 functional areas, three basic organizational concepts, and a generic role concept relative to education were logically derived (Figure 3). Because of the utility of the organizational concepts and the generic role concept for future educational planning generally and the development of the ComField model specifically, the central features of the concepts are reviewed below.

Basic, Long term Trends	Major Subtrends	Social and Technical Implications	Implications for Education	Educational Functions	Possible Future Roles	Major Issues
(Cultural Sector) Increasingly sensate, empirical, humanistic, pragmatic, utilitarian culture.	1A	2A	3A	4A	5A	6A
(Sociocultural Sector) Increasingly sensate, empirical, humanistic, pragmatic, utilitarian culture.	1B	2B	3B	4B	5B	6B
Economic Sector-National) Transitional, mass consumption society characterized by higher GNP and personal incomes, affluence (among better educated).	1C	2C	3C	4C	5C	6C
(Economic Sector-International) World wide industrialization and modernization.	1D	2D	3D	4D	5D	6D
Science and Technology Sector) (I Organization) Institutionalization of change, especially through research, development, innovation, and organized diffusion.	1E	2E	3E	4E	5E	6E
(Science and Technology Sector) (II Information) Accumulation of scientific and technological knowledge.	1F	2F	3F	4F	5F	6F

FIG. 2. An EPRSC contextual map (roles).

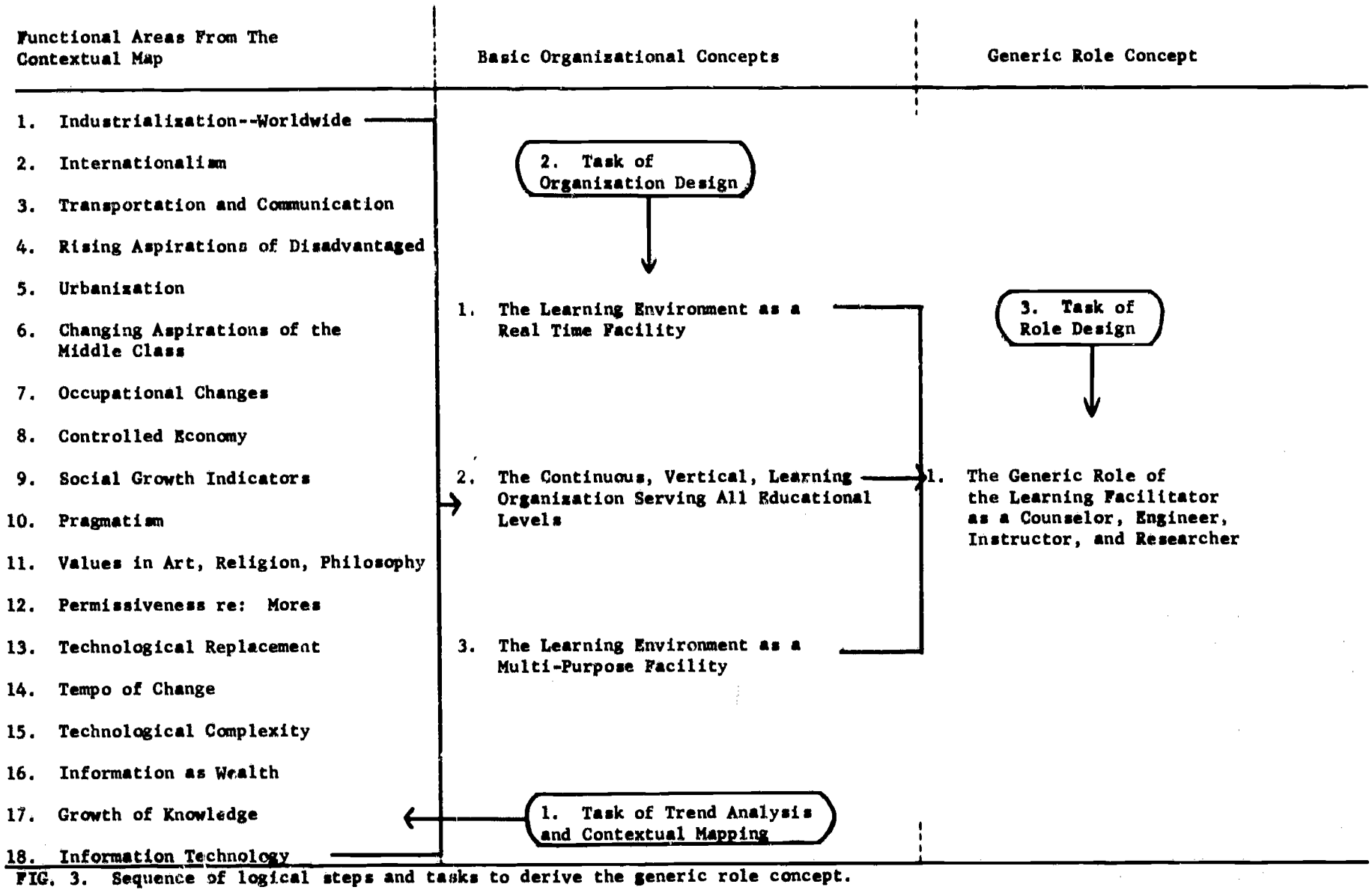

FIG. 3. Sequence of logical steps and tasks to derive the generic role concept.

The concept of the learning environment as a real time facility. Rosove pointed out that, "formal educational system's isolation from the world of reality or 'real life' has taken three forms: (a) education is separated from the world of work, (b) learning is separated from research on the learning process, and (c) education as a discipline is separated from the other academic disciplines (1968, p. 40)." The concept of the learning environment as a real time facility holds that such isolation cannot be tolerated.

The concept of the continuous, vertical learning organization serving all educational levels. This concept is based upon current developments and trends which suggest that ... "within twenty years a new structure of education may well emerge. Here the focus is upon the organizational consequences of the concept of the learning environment as a real time facility. The traditional levels of schooling--elementary, secondary, colleges, etc.--are gradually breaking down. The predictions are that within two decades capabilities for individualized learning will evolve into educational systems causing the current levels of schooling concepts to become obsolete except perhaps for social or other age-graded group activities, such as sports, pageants, fairs, etc. (p. 43)."

The concept of the learning environment as a multipurpose facility. "This concept follows logically from the concepts of individualized instruction based on computer-drived information systems, the learning environment as a real time facility and as a continuous, vertical organization serving all age grades. Once one abandons the idea of the 'classroom' in which groups of twenty to forty students of approximately the same age are fed the same subject matter, the same 'learning resources' and computerized systems can serve all types of learners with different career goals, at different age levels, and from different segments of society at no extra cost (p. 47)." Furthermore,

> the obsolescence of old knowledge, the acceleration of new knowledge production and the proliferation of new specialities combine to make it increasingly difficult to draw a clear line between work and education. Rapid developments in science and technology require professionals and technicians alike to remain students throughout their lives. With the obsolescence of the notion of 'graduation,' the learning environment should be conceived more realistically as a multipurpose institution serving with equal facility the needs of both worker-scholars and scholar-workers (p. 47).

The generic role concept of the learning facilitator. This concept combines the four functions of counseling, engineering, instructing, and research. The potential transformation of the teacher's role from a dispenser of information to a learning facilitator represents only the beginning of the possible changes that may occur during the next twenty years.

A ComField based teacher education program is designed to prepare educational personnel to carry out the functions essential for operating the kinds of educational systems predicted for the 1980's and beyond.

The Development of Learning Experiences Which Assure the Realization of Program Objectives

One of the major consequences of considering tasks to be performed by teachers in terms of outcomes to be achieved in schools is the burden of responsibility it places upon those in the teacher education program to develop reasonable

and valid task specifications. This is particularly critical with respect to the classes of pupil outcomes that are to derive from the educational program because the welfare of children, the community and the nation are at stake. The criticalness of the issue necessitates that the ComField model specifies that a mechanism (an educational objectives commission?) be established at the state level with strong representation from local communities, schools and colleges to work toward the development of a taxonomy of outcomes appropriate to the function of educational systems in the 1970's and '80's. In addition, the model specifies that all decisions as to such outcomes must be reflected against (a) what is known about human development and behavior, (b) what is known about the present social and cultural context, and (c) what is known about the nature of alternative future social and cultural contexts.

After having specified the tasks which learning facilitators are to be able to perform, three steps are involved in developing procedures which will permit the assessment of competence in the performance of those tasks:

1. Specify the behaviors or products of behavior in the target population, i.e., in children or parents or curriculum that are acceptable as evidence of competence in the performance of a given task.

2. The specification of the knowledge, skills, and sensitivities that are needed by teachers in order to provide the conditions outlined in (1).

3. The specification of the conditions by which the knowledge, skills and sensitivities needed by teachers to perform their various school tasks can be developed.

Once (3) is known, it then becomes possible to design and develop the learning experiences that constitute the teacher education program. The sequence of steps involved in the systematic design of a ComField based teacher education program is illustrated schematically in Figure 4.

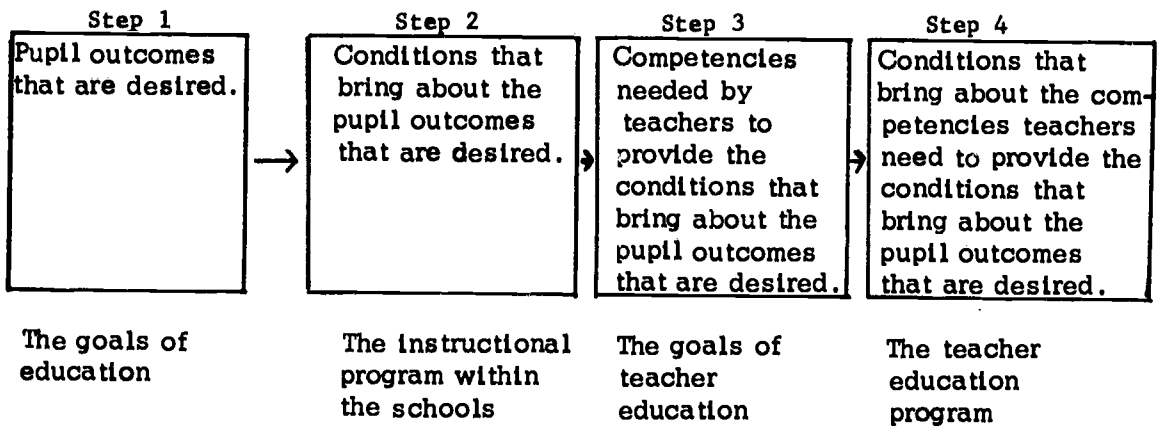

FIG. 4. A model to be followed in identifying the curriculum of a teacher educational program.

The Development of Personalizing Strategies which Assure the Relevance of the Program to Those Who are In It

Individual differences in the learning patterns, capabilities and preferences of students in a teacher education program must be more than recognized. One

major concern for individual differences focuses on the design of instructional systems with multiple entry points and multiple "critical paths" along which students can move, multiple media forms so that information processing preferences can be pursued, rate of progress through a system or through the full contingent of systems being under the control of the student, opportunity to develop an idiosyncratic teaching style, etc. The personalization of a teacher education program requires a number of additional elements. These include an opportunity for students, within established limits, to:

1. Contribute meaningfully to the design and development of the program.

2. Negotiate that which they wish to take from the program.

3. Negotiate the settings within which the competencies negotiated in (2) are to be demonstrated.

4. Negotiate the criteria by which judgment is to be made about competence.

5. Continuously assess the relevance of the objectives that have been negotiated, and the relevance of the educational experiences being pursued in relation to those objectives.

6. Develop a minimal level of self understanding as a basis against which to make such judgments.

7. Develop an overall style of teaching that is in concert with one's self understanding.

The Development of an Instructional Management System which Assures that the Support Functions Needed to Carry Out Such a Program are Available

Every instructional program has to be managed. In most programs these functions are taken as a matter of course; administrators, registrars, counselors, and maintenance personnel are unquestioned elements in program operation. In a ComField based teacher education program, these same supporting functions must be provided; but because of the performance based, individually paced, personalized, and largely self instructional nature of such a program, they must be provided in a markedly different form. In order to operate, a ComField based instructional program requires eight support functions:

1. Personnel selection and training.

2. Maintenance of equipment, supplies, and facilities.

3. The development of instructional systems for use in the program and the pursuit of the basic research needed in support of that function.

4. Continuous evaluation of the effectiveness and appropriateness of the program.

5. Continuous adaptation of the program in light of its systematic appraisal.

6. The cost accounting of the program.

7. The execution of the program.

8. Maintenance of an information management system that will permit all of the

above to occur.

The relationship between the ComField management and instructional systems is illustrated schematically in Figure 5.

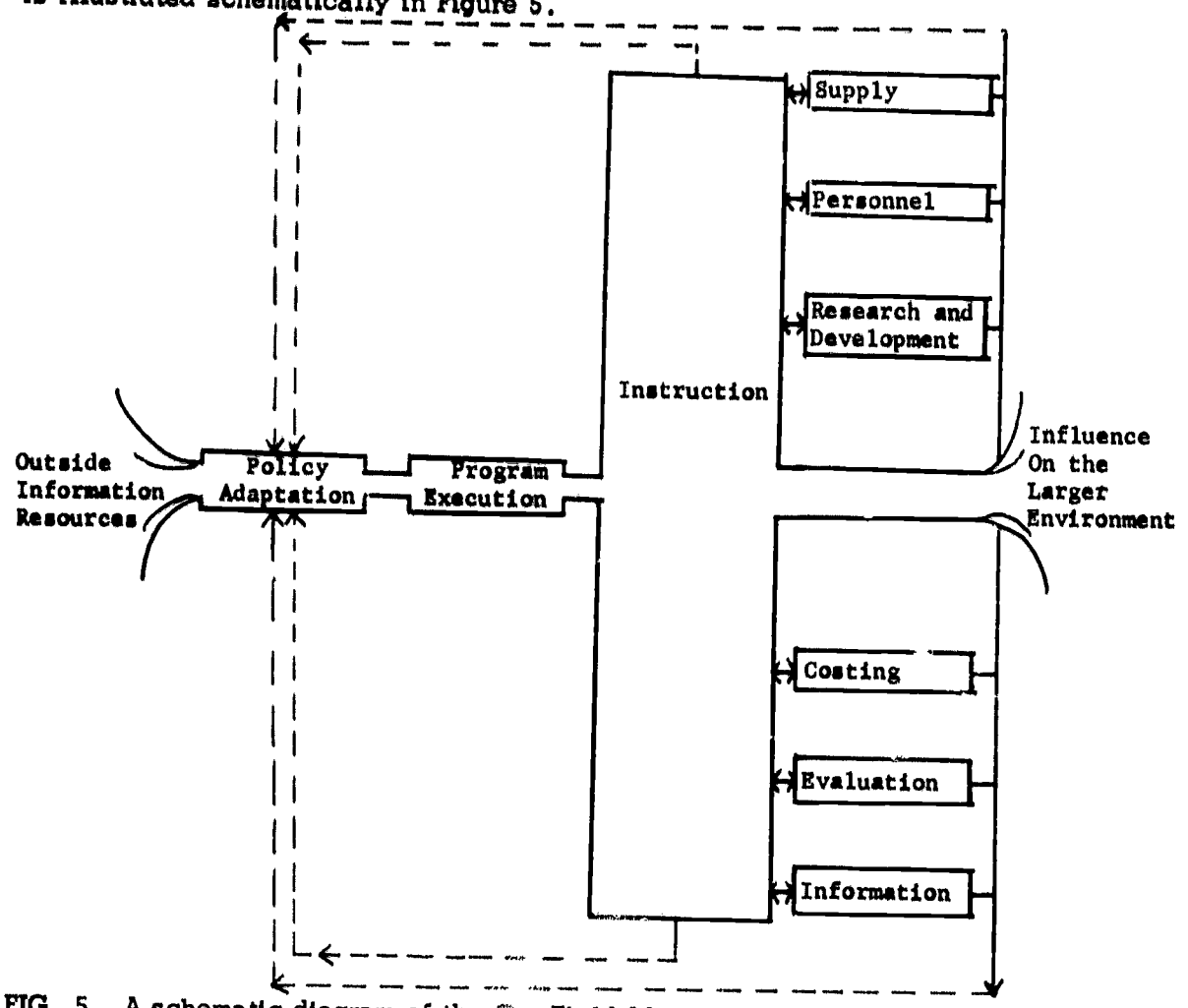

FIG. 5. A schematic diagram of the ComField Management System.

The ComField model of a teacher education program is the produce of a consortium of 26 colleges and universities from the northwest region of the United States working in cooperation with five State Departments of Education, the Northwest Regional Educational Laboratory and the Teaching Research Division of the Oregon State System of Higher Education. The model specifies that each teacher demonstrate the ability, under both simulated and live classroom conditions, to effect changes in the behavior of pupils that reflect the outcomes desired for them. In addition, the ComField model specifies that each teacher demonstrate that he can effectively perform the noninstructional tasks required of him in a school setting, for example, conferencing with parents; that he demonstrate that he can effectively use interpersonal or group process skills to facilitate the application of instructional and noninstructional competencies; and that he demonstrate that he has integrated all professional competencies into a unique and personally relevant teaching style.

Procedurally, the ComField model specifies that "instructional systems" be employed to bring about professional competencies and their personalization; that instruction within these systems be individualized with respect to point of entry into the curriculum, pacing, sequencing, information processing preferences, etc.; and that a computer based information management system be

used to handle the frequent and diverse demands upon information created by the above. Two additional procedural requirements are specified: cost/benefit data are to be provided for all aspects of the program, and an adaptive mechanism is to be developed to insure the continuous modification of the program in light of evidence as to its costs, effectiveness and appropriateness. A management model designed to implement these procedures within participating colleges and schools is also specified.

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STRATEGIES FOR MAXIMIZING THE DEVELOPMENT OF TALENT AMONG THE URBAN DISADVANTAGED

by

Joseph H. Douglass

Talent retrieval among the urban disadvantaged is one of the major problems confronting our nation at the present time. Among the many groups who especially suffer talent loss are the Mexican-Americans, Negroes, Puerto Ricans, and the large complement of "native whites" who make up the majority of those classified as the urban American poor. With increasing urbanization and the apparently continuing ghettoization of certain groups of the population there is little doubt that current overall trends further entrench disparities both along the lines of differentive socioeconomic status and on the basis of ethnic identity.

A large part of this indictment must be laid squarely at the door of the public education system, for the schools more than any other agency in our society are invested with the responsibility of the preparation of the young in terms of their coping and functioning ability levels. For example it is estimated that in this

decade some 7.5 million youngsters will drop out of school before high school graduation. And some 80,000 of the youth who drop out each year have IQ's within the top 25 percent of the population--that is, 110 or better. In all probability, that potential will never be tapped.

Some Parameters of the Problem

On all overall basis relatively few school systems throughout the country have instituted programs for the identification of the talented and where such programs do exist they do not begin at preschool levels, continue through secondary level, and go into colleges and universities.

Outside of the academic structure specific programs for the retrieval of talent among the disadvantaged appear to be nearly nonexistent. Job oriented programs, or those concerned with the problems of dropouts, include the talented only as secondary or tertiary aspects of their major orientation. Since the poverty status of such a large proportion of the disadvantaged population demands continuing critical and urgent attention, it is possible that concern with the talented within their ranks is thought of in more or less "luxury terms."

The task often becomes increasingly more difficult since disadvantaged individuals manifest many cultural deficiencies. Also, the devices used as predictors of potential talent, such as the traditional IQ tests, measure only partial aptitude and predict possible academic achievement. Thus, for the poor as well as for the more advantaged populations, these tests do not measure creative potential in nonacademic areas. Limited success in the development and use of so called "culture-fair" tests similarly indicates that no satisfactory method yet has been devised to discover or predict talent potential among individuals who for economic and cultural reasons are not in the mainstream of American life. Further, the present body of knowledge concerning the relationship between aptitude and achievements is sparse indeed. Little is known, for example, about the so called "late bloomers." Other than Terman's Longitudinal studies and a few other isolated analyses, evidence is scarce by which to validate prediction scales of individual achievement. In fact, it appears that most emphasis in talent identification is not based on scientifically reliable methods, but frequently upon factors such as teacher awareness and assessment of an individual's potential.

On the other hand, many newer experiments and projects for the disadvantaged, although oriented largely toward compensatory education, show varying degrees of progress in the direction of talent development. Several of these innovative approaches in process throughout the nation hold promise for attacking various aspects of the overall task of optimizing the talents of disadvantaged urban youth and mature adults. Unfortunately, (a) many of these excellent educational programs have been initiated only recently; (b) many fail to reach the larger proportion of people most in need of such assistance; (c) the terms creative, talented, and gifted are not defined clearly for operational purposes; (d) effective methods have not yet been devised for discovering or optimizing definitely the various types and ranges of talent that exist; (e) talent loss is most severe among the disadvantaged because of their lack of exposure to broadening and culturally enriching experiences which would enhance the growth of abilities; and (f) present emphasis is primarily on the expansion of natively demonstrated talent or skill, as defined and accepted by middle class values and not on the deliberate search for and nurture of potential ability.

Frequently, those who could be or are creative or talented in other than intellectual ways are overlooked because they have not performed at above average academic levels or have not had the opportunity to participate in activities in

which they have potential capability.

Despite the foregoing circumstances, there is a very large untapped reservoir of talented and creative people within the ranks of the so called disadvantaged. Indeed, it is certain that since this group is about three times as large as the upper middle class population, there are potentially more able children with talent in the nation's slums than in the upper middle class. Projections suggest that about 4.5 million slum children possess above average intelligence as compared to 3.5 million upper middle class children (Davis, 1968). The prospects of these talented persons being identified or having their capabilities nurtured or optimized are minimal under present circumstances in public education. A variety of investigations such as the Coleman Study (Coleman, et al., 1966), the Passow Report (Passow, 1967), and reports of Armed Forces' Qualification Tests (Conner & de Neufville, 1966) certify that those who are disadvantaged are likely to remain disadvantaged.

Therefore, strategies for the identification and retrieval of talent among disadvantaged groups must take into account such conditions as: all of the generally inferior education which the urban disadvantaged group receive in comparison with more advantaged persons; the widespread psychologically and socially depressing environments in which they live and in which, for the most part, they are confined; continuing racial discrimination; and the unavailability or lack of application of innovative strategies for maximum talent development. Present educational conditions and circumstances undoubtedly tend to perpetuate and widen the gap which exists between the "haves" and the "have-nots." As a result the nation is deprived of the creative potential and contributions of which these persons are capable, and the ranks of dependency and other handicapping conditions continue to grow.

Some Approaches

Today, those concerned with possible strategies for maximizing talent among the disadvantaged are asking a number of fundamental questions about matters such as the management and control of schools, the preparation and roles of teachers, curriculum content, class size, the division into yearly grades, the full year and extended use of the schoolroom, and the use of an expanding number of technical instruments already available for effective self instruction. Basically an old question persists: What are schools for? The old philosophy of "education for living" still holds sway in the educational establishments, although the rest of the world sees increasing logic of the point of view of "education as a part of living"--and the differences are more than semantic.

Several authors have written about the difficulties in the so called straddling of cultures between the middle class teacher and the lower class child, the comparative difficulties of mutual conflicts in value expectations, and the critical role of the instructional and guidance staff in making the school experience either a pleasant one or the reverse. Several investigators note that children quickly develop different expectations of success or failure in intellectual tasks and that there is not only interaction between the psychological organization of the child and the method of presentation, but also between the substantive content and the methods of presentation (Kagan, 1967).

Much of the literature now suggests that in attacking the problem of talent retrieval, especially among the urban disadvantaged, a number of steps are necessary in overall strategy. Since, for example, groups such as Mexican-Americans and Puerto Ricans continue to exhibit special difficulties, such as the cultural differences from the general population and the lack of facility in the use of English,

special effort should be made to extend and broaden educational programs through greater use of multilingual instruction. The cultural contributions of Negroes and other minorities should be included in regular textbooks and related materials to enhance self esteem and group pride. Relevant materials pertaining to all groups should be included in educational curricula in all parts of the United States.

Innovative experimental efforts to discover and develop talent such as involvement of disadvantaged groups in educational TV programs, plays, street festivals, and art exhibits, should be widely encouraged and developed through the cooperation of foundations, churches, temples, synagogues, fraternal organizations, business, and other groups. The effectiveness of street academies, storefront schools, and writer and filmworkshops should be evaluated with the view of replicating their best features in large metropolitan communities.

Guidance counselors and instructors are strategic in the development of the self image with which children regard their aspirations and potential. Accordingly, many compelling arguments support the view that the most experienced and unbiased teachers are needed to motivate and develop youths from disadvantaged backgrounds and that the education of such children cannot be left to chance.

Activities such as these represent a wider view of the kinds of talents which we are losing under our present social and educational system. A wider view of educational methodology and the roles of educational institutions must be developed.

Educators themselves admit that the classroom is not the sole locus of education. Parents, teachers, and students alike are beginning to realize that education takes place all over our cities--in front of a television set, in a storefront, in the more active neighborhood libraries, on the playing fields and in the recreation center, in the machine shops that have a training contract, and in the churches which transmit the tradition, culture, and arts of many different groups in America from one generation to the next. It has been noted that

> Today's schools are faced with testing the relevance of what they are doing in the classroom against the relevance of what the student experiences outside the classroom. And there is more total information being pumped into the student's world outside the classroom than there is inside. Also, the degree of competency involved in the tasks and the information that the student perceives outside the classroom have changed (Culken, 1968, p. 6).

Basic Strategy

The basic strategy which we would propose follows this point of view to certain logical conclusions. In a sense we are thinking of enlarging the whole education enterprise to include an entire planetary system of other human activities, just as the Apollo astronauts were able to look at our entire galaxy from an entirely new vantage point. This figure of speech and our discussions are directed at a genuine revision of and new look at traditional educational concepts. We should like to see a system far more flexible and universal than now obtains. We might think of the formal school system as a center and the other facilities as satellites. The relationship of one part to another is always changing, but still it is orderly. It is one system--with room for many kinds of variety.

We would include the young and the old in this educational system. We all

have our "teachable moments" and experience educational needs which arise from changing work requirements, from chance exposure to new and fascinating subjects, and from the desire to explore a new field or an old hobby. Would it not be feasible and desirable to have many opportunities for the young and old to learn together? Doubtless, they have much to learn from each other. In many areas, particularly those which are developing from new technologies, adults need new skills and new insights as much as the youngsters and often might learn together with young people to cope with rapidly changing conditions and requirements.

In educational terms, then, we are thinking now about the maximal use of many different institutions to become satellites of the school system. We are looking forward to a system in which it is recognized that education has no rigid and defined horizons, and that the school system should be looked at in the same way: learning should be stopped by no horizons. Brameld (1968), among others, suggested that an approach of this type

> means that the surrounding natural and social environment is constantly utilized as a boundless resource of learning. ...it means a freshly designed model of the 'community school'--not the caricature we now often hear about but one which provides wide, busy, two-way avenues equally traveled in both directions by learners on the adult level and by children of nursery school age upward.

For example, we would like to see a sixth grader who shows an interest in biology and in growing things permitted and encouraged to work in a greenhouse. We would like to see an attitude developed in which that time spent learning in a greenhouse would not be considered as "out of school." We need a system which gives our children--especially the disadvantaged children--exposure to many such ways of working and living.

This concept is difficult to summarize although several efforts are being made in numerous communities and in varying settings. The strategy proposes that, beginning quite early in grammar school, pupils should be given not only numerous field trips but extended periods of learning time in institutions not usually considered schools. These would include places where knowledge is stored, such as art museums, science institutes, and libraries. These also would include places where knowledge is being put to work, such as farms, hospitals, airports, machine shops, sheet-metal works, and construction. Emphasis would be on those places in which some kind of education or learning--or on-the-job training--is under way. Most certainly in this country we should make far better use of those outside institutions which in many cases are doing a superb job in their own areas. It makes no sense to teach typing on old standard typewriters by yesterday's methods when the public school really should contract with the private business school to teach typing and business procedures on up-to-date machines with up-to-date methods. The same is true of the growing class of private trade schools being built up in America, which are completely unlike the old time trade school still with us and which in many ways has become the ghetto of American education.

We should add that children at an early age should visit places where knowledge is being discovered--places of research and scholarship. Here again we have been misled for years by a false idea of the age at which children can really make a contribution or are able to comprehend. (Children have been taught to use the typewriter at ages 3 and 4.)

A number of these kinds of educational experiences are being carried out in

our country. In Newton, Masaachusetts, junior high school students go out into the community for learning experiences. One group of young boys went to the home of an author and poet to discuss and to practice writing. They learned not only about writing, but, as some began to produce finished material, they learned about the intricacies of the publishing world involving agents, financing, royalties, and printing.

In Wichita, Kansas, junior high school students volunteered for an after school and Saturday program in woodworking and metalworking. The project was so successful that students had to be put on a waiting list and teachers noted improved attitudes in other class activities on the part of participants.

Dyer Junior High in Bloomington, Indiana, reports a student operated tea room and a program for mass producing small tables and chairs, with academic subjects presented as related to job and life situations (US Office of Education, 1966).

Philadelphia has 220 school-community coordinators, residents of the community which they serve, working to merge school and community interests. San Diego has physical education students from local colleges working as aides in preschool and primary school programs. Members of the disadvantaged community who too often in the past have felt hostile toward the school are being brought into the school as aides (Mauch, 1969).

Some Basic Elements

Many persons would like to see an ideal system designed to foster all kinds of talent at all levels and include the following characteristics:

Great flexibility. A far more flexible total system is required to foster all kinds of talents for all kinds of creativity, fulfillment, and productivity in society. The ideal system takes for granted that we must help children proceed at their own pace, but I believe we often hold back from facing up to the logical conclusion of that philosophy. We must really break up the school itself into small learning groups and provide small modules where one person learns at a time or where pairs or small teams may work together. There must be a far greater degree of flexibility than most persons are willing to imagine--and we grant that it will be difficult to devise new ways of grading or measuring performance.

An early start. Much recent research and experimentation show that generally we tend to underestimate the ages at which children begin socialization processes. We fail to appreciate the ages at which children would like the things they learn to be relevant to the world in which they live. This, of course, is particularly important to retrieving and developing the talent of those who have been outside the walls of a particular part of the larger culture. Among these are the children of rural and urban deprived areas whose abilities are not demonstrated and indeed are barely discernible when the ordinary middle class teacher from the larger culture approaches them in traditional ways with traditional tasks.

We know that the poverty of stimulation of infants and young children may lead to the inhibition of intellectual abilities and emotional capabilities in later life. We should like to see educational specialists sent out to day care centers to undertake early educational activities which we know to be beneficial during early childhood years and to work with subprofessionals and volunteers who are active in these centers. (Not all children are in day care centers, nor should they be.) I should like to see the educational center provide continuing parent education programs for parents and substitute parents (i.e., grandmothers, baby-

sitters). The program might be carried out in the school, the hospital, or the factory, with library facilities providing toys, books, records, and other materials to be used at home.

An early apprenticeship. Generations ago we rightly became agitated about the shameful exploitation of children in factories and in shops. Child labor laws were passed with the best intentions in the world, but some of the great virtues and satisfactions of work perhaps were overlooked. Today there is a growing concern that we have been shortsighted in cutting off children from apprenticeship in the world of work.

It may be said--and with some truth--that there are great dangers in the public school system's becoming too involved in job education. But here again, as in the case of the grammar school pupil, I believe part of the answer is related to exposure. We should have an educational system in which the teenager gets some direct exposure to different ways of making a living, exposure to the world of medicine and to mechanics and to different ways of recreation--from bowling to Bach quartets. We would have no objection to an education which starts a child very early toward his life work, if at the same time that education continues to expose him to the satellite systems which orbit around the world which he will regard as his center. The child and teenager in the ghetto all too often do not see a father figure at work and perhaps see their mother employed only at low paid, back breaking, and demeaning work.

An open system. Traditionally, we have thought of our educational system as an open one--free, public, universal, compulsory--but as we have been called upon to reexamine our schools, we have found that they are, in truth, open only from within. Once within the system--and this requires a very early start--a variety of avenues are open to the individual or to groups of individuals. But entry or reentry becomes a very difficult, if not impossible, procedure for the child who does not fit in at the start, for the youngster who drops out of the system, or for anyone who has not grown up within the system. We need educational procedures which extend to everyone the opportunity of easy access regardless of his previous experiences within, or relation to, the system. Access to the educational complex should be readily available for every person, at every stage of development, from any point within the community.

The Model

As a model, therefore, let us envisage an educational globe or educational center around which orbit a number of satellites, each with two-way communication and transportation facilities feeding into and out of the education center. The educational globe represents the cluster of personnel, materials, building facilities, and support services unique and necessary to the educational processes. Included is the professional teacher skilled in the techniques of working with youngsters, effective in the application of learning theory, adept at identifying and diagnosing individual problems and in recognizing special talents and skills. We have such teachers.

Included is the education administrator--the agent who already is responsible for the operation of the largest enterprise in this country--the administrator who must make the program of each student operable. We have such administrators. Included are the counselors, school psychologists, social workers, and the aides and other paraprofessionals who are beginning to participate in the educational enterprise. Included here also are the materials of instruction, particularly those which allow for the individualization of learning; the books, records, tapes, programs, films--the hardware and software which educational technology and indus-

try make available to us. We have such resources.

The satellites, moving in changing orbits around the center, represent the many resources which are present within the community--medical facilities, hospitals, and clinics; transportation complexes such as airports, depots, and harbor authorities; industrial units; military installations; banks and brokerage houses; institutions of higher education; centers for aesthetic study such as art museums, theaters, and conservatories; recreational facilities, parks, playgrounds, and ball fields; research and development centers; libraries; federal, state, and local government agencies; shopping centers; radio and television stations; newspaper services; and many more.

We have put our educational globe and satellites--in other words, the world we know and live in--in synchronistic motion in order to emphasize the number of possibilities for interaction and the changing patterns of relationships among the component parts of the system and to illustrate the number of combinations and permutations which may be generated to supply optimum educational benefits for the individual, the family, and the community.

I should like to see every student receive maximum exposure to existing opportunities and maximum personal encounter with all facets of the community. This model of education will require more--not less--of the professional educator. Advanced systems engineering techniques will be necessary to monitor the placement and progress of individual students. Counseling services will be expanded and data banks will be maintained of pupil interests, talents, aptitudes, and achievement. Teachers and the rest of the population will need to adjust programs to individuals rather than to approved texts.

Additional aspects of the system include:

1. Redefinition of the range of potential talent and creativity.
2. Emphasis on early identification of talents and on early correction of, or compensation for, pathological conditions.
3. Provision for stimulating environment for infants and young children through child care centers and parent education programs.
4. Maximum reliance on self placement, self pacing, and self evaluation.
5. Expanded and revised concepts of teacher and student.
6. Abolition of grade placements as presently conceived.
7. Freedom of entry and reentry at all ages.
8. Motivation based on interest and appropriate learning experiences rather than extrinsic rewards.
9. Early opportunity to follow special interests and talents combined with early apprenticeship and on site educational experiences.
10. Changed concepts of passing and failing and of accelerated or retarded.
11. Educational experiences which emphasize the affective and psychomotor domains as well as cognitive learning.

12. Experiences which allow divergent as well as convergent thinking.

13. Sensitivity training beginning in early years and providing variety in means of communicating and expressing ideas.

14. Use of systems analysis in plotting and "recycling" individual student programs.

15. Reexamination of present systems of prerequisites and requirements for study.

16. Examinations based on performance to establish entry level when necessary.

17. Use of simulation techniques as well as actual situations to stimulate decision making and responsibility.

18. Individualization of instruction through use of appropriate technology--computer assisted instruction, individual programs, tapes and films, microteaching techniques, programed instruction, television.

19. Reconceptualization of teacher training programs.

20. Maximum involvement of the home.

Some Added Dimensions

As indicated previously, there are many clues regarding talent development, such as those pertaining to stimulation of interests and motivation, and newer discoveries relative to the nature of learning processes, particularly to perceptual abilities and cognitive styles in the early formative years of a child. However, numerous parameters of ego development and personality characteristics of the talented continue to remain elusive. Much more needs to be known regarding parent-child relationships, correlations between aspirations and motivation, and such operational factors as optimal class size, composition, and peer relationship to insure optimalization of talents. Despite the need for considerable research, we have become aware recently that many school difficulties are really not so much intellectual as emotional. Accordingly, all schools must make proper and improved provision for dealing with emotional disorders, mild or severe, for we know that the early identification and treatment of serious trouble may mean the difference between productive and unproductive lives. Some research convincingly indicates that the level of intellectual capability young people will achieve at 17 is already half determined by the age of 4 and that another 30 percent is predictable at 7 years. Therefore, to properly prepare all potentially talented children, special focus should be placed on preschool children in disadvantaged circumstances, in order that they may be able to derive maximum benefit from their entire formal learning experiences.

Companion efforts should be made for the postschool age populations because adult populations also are definitely "salvageable." Through expanded work opportunities and retraining, many special abilities have been discovered and new careers have been opened up to those who never would have found their talents had not the opportunity been provided with the chance to test their skills.

While it is recognized that a national program of total talent development would require a large financial commitment, such an effort should be undertaken, not only as an investment in human potential, but also as a measure by which many social ills may be ameliorated. The long range cost of losing talent potential is probably far greater than the cost of a national commitment to develop high

level talent. In addition, the more skillful development and utilization of human resources would not only bolster but also expand the economy while continuously upgrading the levels of living for all Americans.

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TALENT POTENTIAL AMONG THE DISADVANTAGED:

THE PROBLEM IN PERSPECTIVE

by

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> It seems probable that our society actually discovers and develops no more than perhaps half its potential intellectual talent (Havinghurst, 1961, p. 524).

The decade of the 1960's may very well be remembered as the period in our history when the education establishment began to pay serious attention to the detrimental effects that result from the inferior educational opportunities that exist for a large proportion of our population. Millions, and perhaps billions, of words have been written and spoken in the interests of education among the disadvantaged, and books such as How Children Fail (1966), Death At An Early Age

(1967), and Pygmalion in the Classroom (1968) have literally shocked us into the reality of the urban situation. If we look upon the activities and pronouncements of the sixties as only the first step in a direct frontal attack upon the problem of urban education, then the heightened interest of this decade certainly can be viewed with optimism. But our view should not be blurred by such optimism, for a large gap exists between words and action, and the scattered attempts to "do something" for the culturally disadvantaged thus far represent little more than the proverbial "drop in the bucket" when compared to the great number of youngsters whose day by day school experience is nothing short of an educational and psychological disaster. If, on the other hand, the ground work laid during this decade has not been a false start, then action to correct the well recognized and certainly most crucial problem in our schools remains the challenge and the task of the 1970's.

The purpose of this symposium is to explore tactics that may give direction to the task before us. My remarks will be confined to a brief overview of relevant aspects of the situation as it currently exists. The principal paper by Dr. Douglass will focus on strategies that hold promise for maximizing the great talent potential that lies unidentified and understimulated in the nation's ghetto schools. Our discussants, Mrs. Brown, Miss Jacobsen, and Mr. Yawin, have joined in this symposium because of their diversified experience in working with disadvantaged children and adults. In reacting to Dr. Douglass' paper they will provide us with examples from their own experience concerning "what works" and "what doesn't work" in the education of the disadvantaged. We hope that members of the audience will help make the symposium a success by both asking questions and relating experiences that might provide useful information to those present.

The Nature and Scope of the Great Talent Loss

There can be little doubt that the largest untapped source of human intelligence and creativity is to be found among the vast number of individuals in the lower socioeconomic levels, and particularly among the approximately twenty million black Americans. It would be a monumental task to explore all of the causes that have contributed to our failure to discover, stimulate, and make the most efficient use of this neglected source of talent; however, intensified efforts to overcome this failure are unquestionably based in part on the simple realization that an invaluable natural resource is being wasted daily by a system of education that has shut its eyes and turned its back on the children of the ghettc. The by-products of this waste are plainly evident in the form of unprecedented urban turmoil, unemployment and underemployment, rising crime and delinquency rates, and, most important of all, the human despair that always accompanies thwarted expression and creativity.

What exactly are the dimensions of the talent potential among minority groups, and what will be the costs of further delay in providing opportunities for the expression of such potential? A large body of accumulated research clearly indicates that gifted and talented children can be found in all racial groups and at all of society's economic levels. With respect to family background, Terman's (1925-1959) monumental study of gifted children showed that, in actual numbers, the nonprofessional segment of the general population contains more than twice as many gifted children as the professional group. With respect to racial and ethnic origin, Miles (1954) reports that many high IQ Negro children can be found when looked for in Negro communities. Studies by Jenkins (1948) and Witty and Jenkins (1934) indicate that race per se is not a limiting factor in intellectual development, that Negro children with high IQ's come from a variety of backgrounds; and that educational achievement of highly able Negro children resembles that of other gifted youngsters. In more recent years, the well known works of Hunt (1961) and

Bloom (1964) have called attention to the significant role that environment plays in intellectual development. The massive number of research studies summarized in these works have crucial implications for the role that education can and should play in developing the high potential of youngsters from all races and social classes.

In addition to these studies that are concerned mainly with the older or more traditional definition of giftedness (i.e., giftedness in terms of IQ), a rapidly expanding body of literature that deals with a broader concept of talent development has recognized that children from depressed areas, low income groups, and racial minorities probably represent our largest unmined source of creative talent (Passow, 1966; Torrance, 1968). The importance of identifying and developing creative talents at all levels of society has caused leading philosophers and educators to focus their attention on this problem. In an article entitled, "Is America Neglecting Her Creative Minority" Toynbee (1964) commented:

> To give a fair chance to potential creativity is a matter of life and death for any society. This is all-important, because the outstanding creative ability of a fairly small percentage of the population is mankind's ultimate capital asset, and the only one with which only man has been endowed (1964, p. 4).

In a discussion of the role of creative talents in history, Toynbee was asked if the suppression or nonrecognition of the creative minorities in populations inevitably leads to weaknesses in the structure of society. His dramatic reply calls attention to the crucial nature of the problem:

> It leads to explosions, doesn't it? Why did Christianity secede from Judaism? I suppose because the Jewish establishment of the day didn't handle this awkward situation wisely. Why did St. Francis and his followers not become heretics, but became a new, vital, and creative element in the life of the western Christian church of the day? Because Innocent III and Cardinal Ugolino had the sympathetic imagination to handle them right. I think that attempting to suppress a creative minority is a very dangerous thing to do, because the fact that a dissenting minority arises--and a creative minority, is always a dissenting one to begin with--should lead the establishment to self-criticism, not just to blind opposition. I think the result of the latter is always disasterous (Toynbee, 1967, p. 17).

Realities of the Urban School Situation

In spite of the existence of this vast source of untapped talent, and in full recognition of the benefits that society stands to gain through a systematic investment in talent development, major inequalities of opportunity are still painting a sad picture as we approach the decade of the 1970's. The facts speak for themselves. Although 15 years have passed since the Supreme Court held that separate schools are inherently unequal, almost 80 percent of white students attend schools that are almost all white, and 65 percent of black students attend

schools that are more than 90 percent black (Campbell, 1969). The inferiority of existing schools for low income and minority group children has been clearly indicated by studies which show that the longer these children stay in school the further behind they become in achievement, and the wider becomes the gap between what they should know and what they actually can do (Coleman, 1966; Sexton; 1961). Average drops in measured intelligence of as much as 20 points have been recorded as Negro children progress (or perhaps I should say regress) through the grades (Passow, Goldberg, & Tannenbaum, 1967). Little wonder that the dropout rate for these youngsters is more than twice that of the general population and that the unemployment rate for Negro males is more than twice that of white males (Passow, et al., 1967). Other studies dealing with delinquency, level of aspiration, self concept, aggressiveness, alientation, and a host of other variables reveal similarly ominous findings about the current state of the urban school situation (Coleman, 1966; Williams & Byars, 1968 ; Mathis, 1969). Under circumstances such as these, even the most highly able and well motivated students of the ghetto must surely lose faith in a system where the probability of nonsuccess is so high.

In summary, there are some grim statistics associated with the ineffectiveness of our urban schools. At the same time, there is a growing realization that a wealth of talent is lying dormant in these schools, and that the major educational requirement of the years ahead is to devise creative and functional means to identify and make the most effective use of this talent.

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